

22. x. 1890 (*Lt.-Col. Yerbury*) ; and one ♂ from Colombo, Ceylon, October 1898 (*E. E. Green*).

The types of both sexes are in the British Museum (Natural History).

Writing on November 1st, 1909, with reference to *Musca pattoni*, Captain Patton said :—"This species breeds in cow-dung, and its pupa is *dirty white*. The fly has peculiar habits, in that it sucks the blood which oozes from the bites inflicted on cattle by *Hæmatopota* and other Tabanids, *Stomoxys*, and *Philæatomyia*. It likewise sucks the juice out of the vaccine vesicles on calves, and also the blood after the vesicles are scraped."

From *Musca domestica*, L. (syn. *M. determinata*, Walk.), *M. pattoni* can be distinguished, *inter alia*, by its usually larger size, stouter habit of body, much narrower front in the male, the greater breadth of the sides of the front in the female, and the more sharply defined median stripe on the abdomen in both sexes. The fact that the first segment of the abdomen is in both sexes for the most part ochraceous-buff or buff, instead of entirely or for the most part black or bronze-black, will serve to distinguish *Musca pattoni* from *M. corvina*, Fabr., and other species closely allied thereto. From *Musca nebulosa*, Fabr.,—which, according to Captain Patton, is "the common *Musca* of Madras, breeds in horse-dung and other refuse, particularly in night-soil, and has a reddish-brown pupa,"—*M. pattoni* differs, *inter alia*, in its much larger size, in the front of the male being only half or less than half as wide, and in the presence of the clove-brown mark on the apex of the fourth abdominal segment. In *M. nebulosa* the fourth segment of the abdomen, or at least its apex, is entirely pale.

#### XVI.—On some Points in the Nomenclature of Echinoids.

By Dr. TH. MORTENSEN.

THE nomenclature of Echinoids has received considerable attention of late years, and a great number of publications dealing more or less extensively with problems relating thereto have appeared. Unfortunately the result of these discussions has been by no means a general agreement on these questions among specialists. It is true that recently most of the authors seem to have come to an agreement on some important points; but now Lambert and Thiery, in their 'Essai de nomenclature raisonnée des Échinides' and

in their 'Notes Échinologiques' are trying to upset all that has been done, basing their conclusions on the principles that pre-Linnæan names should be accepted when binominal and that the priority rules should be interpreted as strictly and literally as possible against anything tending to make it preferable to retain names in the old familiar meaning, and that only the characters to be found also in the fossil forms should be taken into account in classification.

I am not going to discuss here all the disputed names, only remarking on a few of the more important, the main object of these lines being to bring forward a definite proposal which may, I hope, be a real step forwards along the way out of the endless discussions and the exceedingly deplorable constant rejection of names hitherto generally used, and the almost criminal perversion of the old familiar names to quite a different meaning—changes which can with comparative facility be held in memory by the specialists, but which cannot fail to be most unfortunate to all those who are not especially acquainted with the group in question, and in cases where the forms concerned are also of importance in geology, as is in so high a degree the case with the Echinoids, still more for palæontologists and geologists. Indeed, to quote (*mutatis mutandis*) from Mr. Frank Springer's address concerning the name *Encrinus*: "The results will be hopeless confusion, will benefit nobody, and cannot fail to bring ridicule upon the taxonomic methods now in vogue."

The name *Cidaris* has recently been very much discussed by Bather, H. L. Clark, Döderlein, and myself, the result being that all these authors agreed that the type of Linnæus's *Echinus cidaris* is the species hitherto generally called *Dorocidaris papillata*, and that accordingly this species should be named *Cidaris cidaris* (Linn.), *Dorocidaris* becoming a synonym of *Cidaris*. Now Lambert and Thiery, in their 'Notes Échinologiques: I. Sur le genre *Cidaris* \*', maintain that the *Cidaris mauri* of Rumphius (= *imperialis*, Lamk.) should be taken as the type of the genus *Cidaris*.

Accepting for the moment that pre-Linnæan binominal names should be adopted (and I agree there is some injustice in taking Linnæus, who ranks decidedly below some of his predecessors as regards the Echinoids, as the starting-point, and that it would be really more just to start from the first binominal names, whether they be pre-Linnæan or not), it seems to me at least very doubtful whether Lambert and Thiery are right. To identify the figure in Rumphius's

\* Bull. Soc. Sci. Nat. Haute-Marne, 1909.

'D'Amboinsche Rariteitkamer,' pl. xiii. fig. 4, with *C. imperialis* really appears very rash. It may equally well (or badly) represent almost any species of Cidarid. Lambert and Thiery evidently base their identification of the figure with *imperialis*, Lamk., on the supposition that this is "le seul *Cidaris* véritable des îles de la Sonde." That this is wrong need not be discussed at any length; it will be quite sufficient to call to mind the fact that De Loriol, in his paper "Échinodermes de la baie d'Amboine" (Revue Suisse de Zool. i., 1893), records three Cidarids from Amboina, viz. *Cidaris metularia*, Lamk., *Rhabdocidaris annulifera*, Lamk., and *Rhabdocidaris imperialis*, Lamk. The figure quoted in Rumphius's work might equally well be identified as representing any of these three species! The identification maintained by Lambert and Thiery, by which is rejected what is otherwise almost unanimously accepted, is thus based on an old bad figure, of which no one can say with certainty which species it really represents—"on reste ainsi dans la tradition des auteurs et l'on n'est pas obligé de procéder au bouleversement général de la nomenclature" ('Notes Échinologiques,' i. p. 30).

In the "Siam" Echinoidea, i. p. 38 \*, I have maintained that the name *Plesiodiadema*, Pomel, must be used instead of *Dermatodiadema*, A. Agassiz—the former having been established in 1883 † for *Aspidodiadema microtuberculatum*, the latter in 1898 ‡ for the species "having only small secondary tubercles in the ambulacral areas"; no type species is named, but it is evident that also *microtuberculatum* must be included in the genus, and accordingly *Dermatodiadema* becomes a synonym only of *Plesiodiadema*. Now it is true that Pomel was confused in his diagnosis of the two genera *Aspidodiadema* and *Plesiodiadema*, saying of *Aspidodiadema* "ambulacre très étroit, réduit à des simples granules, comme dans *Cidaris*," and of *Plesiodiadema* "ambulacres . . . pourvus d'un rang double de petits tubercles." Under *Aspidodiadema* he names the species *tonsum*, under *Plesiodiadema*, *microtuberculatum*. On account of this confusion in the diagnoses the name *Plesiodiadema* is rejected by Agassiz ('Panamic Deep-sea Echini,' p. 59), Dörllein ('Echinoidea

\* "The Danish Expedition to Siam, 1899-1900, Zoological Results, II., Echinoidea I.," Mém. Acad. R. d. Sci. Copenhague, 7 sér., i. (1904).

† A. Pomel, 'Classification méthodique et genera des Échinides vivants et fossiles,' 1883, p. 106.

‡ "Preliminary Report on the Echini. Reports on the Dredging Operations . . . U.S. Fish Comm. Steamer 'Albatross,' 1891, xxiii.," Bull. Mus. Comp. Zool. xxxii. no. 5, 1898, p. 76.

d. deutschen Tiefsee-Exped. p. 157), and by Agassiz and Clark ('Hawaiian and other Pacific Echini, Salenidæ . . . Diadematiidæ,' p. 100). I must confess that the fact that Pomel names a species under each of his two genera, which must evidently be regarded as the genotypes, seems to me to outweigh the confusion he has made in the diagnoses. If we had to refuse all those of the older genera which are incorrectly diagnosed, what wonderful results would come about! When a genotype is designated it does not matter very much whether the diagnosis is quite correct or not. The genotype is the main thing, and as in this case it has been named by Pomel, it seems to me that the name *Plesiadiadema* ought to be maintained in spite of the erroneous diagnosis. But, as so much can be said both *pro* and *contra*, the question ought to be decided by the International Council of Nomenclature.

The name *Echinocyamus* has also been very much discussed in late years. Lambert maintains that what is described and figured under this name by Van Phelsum is the high form now universally called *Fibularia*, not the flat form common in European seas now universally known as *Echinocyamus*. Accordingly he wants to have these two names interchanged, and he has, in fact, done this in his later works. In the 'Ingolf' Echinoidea (ii. p. 38) I have discussed the matter at some length, pointing out (1) that Van Phelsum himself indicates that his specimens came from the Adriatic (and America), where no high forms are found; in the Adriatic *Echinocyamus pusillus* alone occurs, being very common there, as is well known\*: and (2) that the enlarged figures given by Van Phelsum are quite impossible, resembling neither the low nor the high forms among recent species, while the unenlarged figures in any case resemble much more the flat European species than the high East Indian species. Accordingly I conclude that it is undoubtedly our common *Echinocyamus pusillus* which is the type of Van Phelsum's genus *Echinocyamus*.

To this Lambert objects, in his 'Description des Échinides fossiles des terrains miocéniques de la Sardaigne,' that the localities given by Van Phelsum are incorrect:—"On sait d'ailleurs avec quelle facilité peuvent s'égarer des étiquettes

\* In his "Description des Échinides fossiles des Terrains miocéniques de la Sardaigne" (Mém. Soc. Pal. Suisse, xxxiv. 1907, p. 38) Lambert says: "Van Phelsum ne dit d'ailleurs pas comme le voudrait M. Mortensen qu'il y a d'autres *Echinocyamus* dans l'Atlantique et l'Adriatique, il affirme que ces espèces, les types figurés, en proviennent et c'est là sa seule erreur." This must be a misunderstanding of my text. I do not see that I have ascribed the error to Van Phelsum.

volantes. L'erreur commise sur l'habitat des individus figurés est ici d'autant plus évidente que ni Van Phelsum, ni Cramer n'avaient recueillis ces individus eux-mêmes ; ils les tenaient de navigateurs et peut-être de seconde ou de troisième main. Chacun sait combien les erreurs de provenances sont faciles dans de pareilles conditions." Lambert must thus have recourse to the contention that there must have been a confounding of the labels in the old collection of Cramer ; this sounds, indeed, very convincing ! What a pity that this collection no longer exists (as Professor Sluiter has kindly informed me) ; it would have been very interesting to see whether there were any labels at all in it ! Lambert can give no proof whatever that the locality " Adriatic " is wrong. To the other objection, that the unenlarged figures resemble much better the flat form, Lambert only says : " Je ne suivrai évidemment pas le savant professeur dans cette argumentation, où une hypothèse remplace la discussion " ! I am not going to discuss this further, as Lambert will evidently not accept any reason on this point. But I do not fear that anybody without preconceived ideas will join Lambert in his view. I will merely quote, *mutatis mutandis*, from Lambert himself the following passage (' Notes Échinologiques,' i. p. 32, note) :—" Mais pourquoi de pareils bouleversements sans utilité pratique ? Pourquoi, contrairement à une tradition (demi-) séculaire faire d'une forme élevée le type d'un genre que tout le monde a compris autrement ? C'est là du byzantinisme, bon à jeter la déconsidération sur les sciences échinologiques et nous ne cesserons de protester contre de semblables propositions, qui violent en réalité les règles sagement entendues, édictées par les Congrès, et très certainement celles autrement respectables de la logique et du bon sens."

As with *Echinocyamus*, so Lambert deals with a number of old familiar names—*Brissopsis*, *Schizaster*, *Spatungus*, *Echinocardium*, *Strongylocentrotus*, *Diadema* ; they are either used in quite a new sense or wholly rejected. As I think it hopeless to try to convince Lambert of the absurdity of all these changes, I shall not here enter into a discussion of them\*.

In spite of the remarkably modest sentence concluding Lambert and Thiery's ' Notes Échinologiques I.,'—" Ainsi, quelles que soient les divergences d'écoles, nous proposons de mettre pratiquement tout le monde d'accord et cette seule conséquence est pour nous un critérium de l'excellence de nos

\* I have included some remarks on these names, excepting *Strongylocentrotus* and *Diadema*, in the ' Ingolf ' Echinoidea, ii. pp. 174-176.

conclusions,"—I feel sure that the nomenclature adopted by these authors will never be generally accepted, and that the result will only be most unfortunate confusion. But out of these endless discussions about the correct application of priority rules grows the conviction of the absurdity of maintaining these rules strictly in all cases. To have the excellent and universally adopted name *Archæocidaris* changed into the quite misleading *Echinocrinus*, as it should be according to strict application of the rules, does it not appear ridiculous? But that is a minor matter. Look at Dr. Franz Poche: he is the man to make changes worth speaking of! *Holothuria* is to be the name of a *Salpa*; what have hitherto been called Holothurians by the whole scientific world shall now be called Bohadschioidea. *Actinia*, on the other hand, is a true Holothurian—no, pardon me, I mean a true Bohadschioid (a *Cucumaria*),—whereas what have hitherto been called Actinians by the whole world shall now have the beautiful name Priapidæ. *Salpa* is to be rejected for the name *Dagysa*, and we have in the future to speak of the Dagysids instead of the Salps\*. When we have then made *Bipinnaria* a genus of starfish, *Echinus* perhaps an insect, *Nauplius* a crab, *Rana* a fish, *Ciconia* a crane, changed *Palaornis* into *Buteo*, the old *Buteo* into *Craxirex*, made *Cynocephalus* to mean *Galeopithecus*, &c., &c., we will be well off and may be proud of the results of the strict application of the priority rules!

There has recently arisen some opposition to the strict application of the priority rules in all cases which leads to such extremely unfortunate results. At the meeting of the British Association in Dublin in 1908 Mr. G. A. Boulenger † eloquently advocated that "names with which all general zoologists, anatomists, and physiologists are familiar should be respected, should be excepted from the rule in virtue of what may be termed the privilege of prescription," pointing out the intolerable conditions resulting from the transfer of old well-known names to other forms (for instance, *Astacus*, *Torpedo*, *Holothuria*, *Simia*, *Cynocephalus*), as also the difficulties arising from the practice in the use of the previous literature. He proposes that future committees

\* Franz Poche, "Über den richtigen Gebrauch der Gattungsnamen *Holothuria* und *Actinia*, nebst einigen anderen grösstenteils dadurch bedingten oder damit in Zusammenhang stehenden Änderungen in der Nomenclatur der Coelenteraten, Echinodermen und Tunicaten," Zool. Anzeiger, xxxii. n. 3-4, 1907, p. 106.

† "On the Abuses resulting from the Strict Application of the Rule of Priority in Zoological Nomenclature, and on the Means of protecting well-established Names," Rep. Brit. Assoc. 1908, p. 735.

should determine, group by group, what names are entitled to respect and should therefore be protected from the attacks of the revisers of nomenclature.

In a recently published paper ("Some common Crinoid Names, and the Fixation of Nomenclature"\*) Dr. F. A. Bather comes to the same result, that it will be necessary to protect some of the common and more important names, and suggests that "those zoologists who wish to protect certain names should lay the complete facts of the case before the Nomenclature Committee of the International Zoological Congress, and should accompany their request for the retention of certain definite names in defiance of the Rules by the signatures of as many workers on the group affected as they can obtain. Due announcement of the proposed step should be made in certain widely circulated journals, and a reasonable time should be allowed for the reception of protests. The Committee should ultimately give its decision, and this decision should be published in the aforesaid journals." And further details are given as to the practical arrangement of the matter, about which I may refer to the paper quoted.

It may, lastly, be mentioned that Mr. Frank Springer has recently made a practical trial to secure the name *Encrinus*, sending a circular about the history of that name to a large number of working zoologists and palæontologists, and asking their opinion on the question. The result of this interesting trial has not yet been published.

I myself, in 1907 ('Ingolf' Echinoidea, ii. p. 176), made a proposal similar to that now set forth in a more detailed way by Dr. Bather. I there wrote, in regard chiefly to the names of Echinoids:—"I think there is only one way to get out of this almost insupportable condition of the nomenclature, viz., if all the echinologists of the present time meet to form an international committee, and come to an agreement regarding all the names of Echinoidea, one by one, and then publish a complete list of all the names finally adopted, with their synonyms and complete history." Some still older proposals tending in the same direction as those maintained above are recorded in the papers quoted by Dr. Bather and Mr. Boulenger.

It is evident that there is a fast-growing opinion among zoologists that something should be done in this direction. That I for my part most heartily agree with this need scarcely be said. But I may be permitted to make a few remarks on some phases of the question. It may first be maintained

\* Ann. & Mag. Nat. Hist. ser. 8, iv. 1909, p. 37.

that the specialists in the groups in question alone can be regarded as competent authorities. What these agree on should *eo ipso* be accepted by the Committee; the protest of some fanatic "priority ruler" should not weigh against otherwise unanimous wishes from the really competent authorities. In cases of doubt the Committee would, of course, have to decide. Concerning the generic names to be protected, it will be necessary to name the species which should be regarded as the genotype, with references to the best descriptions; species-names will generally be less important to protect, though there may be some cases where it will be very desirable to fix them also. On the other hand, it might be less important to have the whole history of each name worked out before the decision is made. As the decision is to be made against history, I do not see the necessity of that, and it might be left to those who have a special taste for that kind of work; they might then dig up old works, post-Linnæan or pre-Linnæan—even pre-Aristotelian, if such could be found: they would do no harm any more; their work would even be praiseworthy, as it is only just that the merits of the oldest authors should be remembered, and all those who are loth to spend their time on these questions would be freed from that unpleasant work.

I may now proceed to discuss the question about *which Echinoid names should be thus protected*. This, it seems, can be answered at once: it must upon the whole be those used in the 'Revision of the Echini.' From this work, which I would, in spite of my disagreement with the author in several points, term a classical work, dates the whole of the recent Echinoid literature (on the recent Echini), and it will certainly for a very long time remain the basis of the study of the Echinoids. The advantages of having the more important of the names codified in the sense in which they are used in this work, and, indeed, in most of the following literature, are self-evident. I would propose to thus fix the following names:—

<i>Phyllacanthus</i> , Br., with genotype: <i>imperialis</i> , Lamk. (= <i>dubia</i> , Br.).	
<i>Arbacia</i> , Gray .....	<i>lixula</i> , L.
<i>Diadema</i> , Schynv. ....	<i>saxatile</i> , L.*
<i>Strongylocentrotus</i> , Br. ....	<i>dröbachiensis</i> , O. F. Müller.
<i>Echinus</i> , Rond. (L.) .....	<i>esculentus</i> , L.
<i>Echinocyamus</i> , v. Phels. ....	<i>pusillus</i> , O. F. Müller.

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\* As there has recently been some dispute concerning the name *saxatile*, it may be pointed out that I mean the species described under this name in the "Siam" Echinoidea, i. p. 9.



<i>Fibularia</i> , Lamk., with genotype:	<i>ovulum</i> , Lamk.
<i>Spatangus</i> , Klein .....	<i>purpureus</i> , O. F. Müller.
<i>Echinocardium</i> , Gray .....	<i>cordatum</i> , Penn.
<i>Schizaster</i> , Agass. ....	<i>canaliferus</i> , Lamk.
<i>Brissopsis</i> , Agass. ....	<i>lyrifera</i> , Forbes.

There might perhaps also be reason to fix such names as *Salenia*, *Echinometra*, *Psammichinus*, *Moira*, and others, and also *Cidaris* and *Dorocidaris* might be taken into consideration. Nobody, I think, will deny that it would be desirable to keep the name *Dorocidaris*, so much used in literature; *Cidaris* would then naturally get *metularia* as its genotype.

To have fixed *all* the generic names of Echinoidea with their genotypes would, of course, be the best. But if only the above names (and some names of fossil genera ought, perhaps, to be added, as, e. g., *Ananchytes*) were secured, much stability would follow. The end of it should be the making of a complete CODEX NOMINUM, containing all the generic names of the animal kingdom, with their genotypes given.

## BIBLIOGRAPHICAL NOTICES.

*A Treatise in Zoology*. Edited by Sir RAY LANKESTER, K.C.B., M.A., LL.D., F.R.S. London: Adam & Charles Black. 1909.

(1) Part VII. *Appendiculata*: Third Fascicle. *Crustacea*.  
By W. T. CALMAN, D.Sc.

(2) Part I. *Introduction and Protozoa*: First Fascicle. By S. J. HICKSON, F.R.S., J. J. LISTER, F.R.S., F. W. GAMBLE, D.Sc., F.R.S., A. WILLEY, M.A., D.Sc., F.R.S., H. M. WOODCOCK, D.Sc., the late W. F. R. WELDON, F.R.S., and E. RAY LANKESTER, K.C.B., F.R.S.

THE fact that for more than a generation the standard text-books on Zoology in use in this country have been translations from the German or French has been due, not so much to the lack of competent teachers, as to the generous appreciation which we have always shown of what is good in our neighbours. That this attitude redounds to our credit is undeniable. Furthermore, it argues the conviction that no great benefit to science could accrue from the production of a "home-made" book so long as that book was, like its continental forerunners, the work of a single author; for of necessity it could not pretend to be more than a compilation—though a good compilation needs a wide grasp of facts and wise discrimination. Realizing this, Sir Ray Lankester set himself the task of